

**Notice of Allowability**

Application No.

10/829,476

Applicant(s)

NAGANO ET AL.

Examiner

SCOTT R. WILSON

Art Unit

2826

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to Amended Reissue Declaration filed 21 May 2009.
2. ☒ The allowed claim(s) is/are 1-8.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☒ All    b) ☐ Some\*    c) ☐ None    of the:
  1. ☒ Certified copies of the priority documents have been received.
  2. ☒ Certified copies of the priority documents have been received in Application No. 09/576,971.
  3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
  5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
    - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
    - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO/SB/08),  
Paper No./Mail Date See Continuation Sheet
4. ☐ Examiner's Comment Regarding Requirement for Deposit  
of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413),  
Paper No./Mail Date \_\_\_\_\_.
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_\_.

Continuation of Attachment(s) 3. Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date: 4/22/04, 7/28/05, 8/11/04, 9/17/04.

### EXAMINER'S AMENDMENT

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

The application has been amended as follows: In the claims filed 5/21/2009, insert "[direct]" in claim 1, line 13 before the word "connection", so that the last four lines of claim 1 read:

"a second contact plug formed in the protective insulating film to provide a [direct] connection between an impurity diffusion layer serving as a source or drain region of the second field-effect transistor and [the edge portion of] the capacitor upper electrode; and

a hydrogen barrier film entirely covering the capacitor upper electrode."

### REASONS FOR ALLOWANCE

The following is an examiner's statement of reasons for allowance: Independent claim 1 of the reissue case no longer recites the limitation in the parent, Nagano et al. (US 6,441,420 B1), of "an edge portion of the capacitor upper electrode is formed onto the protective insulating film" ("edge portion limitation"), and changes two references from "direct connection" to "connection". In addition, dependent claim 8 adds the limitation that "the first contact plug includes materials different from materials composing the capacitor lower electrode, and the second contact plug includes materials different from materials composing the capacitor upper electrode." The pending reissue claims are adequately supported in the Specification. Figure 1 teaches how the upper electrode (111) makes contact with the protective insulating film (106), and does not require definition of an "edge portion". The lower electrode is disclosed to be formed from a multilayer structure of titanium, titanium nitride, iridium oxide and platinum (col. 7, lines 41-44), the upper electrode is disclosed to be formed from a multilayer film of platinum and titanium, or a titanium nitride film (col. 7, lines 50-52) and the first and second contact plugs are disclosed to be formed from either tungsten or polysilicon (col. 10, lines 11-12).

The art of the previous rejection, Izumi et al. (US 5,644,151 A) does not teach a first contact plug formed in the protective insulating film distinct from the capacitor lower electrode. Izumi et al., Figure 9,

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discloses that the capacitor lower electrode (7) is in direct contact with the impurity diffusion layer (2) of the first transistor. Izumi et al. also does not teach a second contact plug formed in the protective insulating film, distinct from the capacitor upper electrode. Izumi et al., Figure 9, discloses that the capacitor upper electrode (9) is formed in direct contact, via wiring line (11), with the impurity diffusion layer of the second transistor (25).

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to SCOTT R. WILSON whose telephone number is (571)272-1925. The examiner can normally be reached on M-F 8:30 - 4:30 Eastern.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sue Purvis can be reached on 571-272-1236. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

srw

/Sue A Purvis/  
Supervisory Patent Examiner, Art Unit 2826



**Sue A. Purvis**  
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